McNeel, S.V., D. Smith, K. Waller, J. Rogge and M. Armstrong (1995). Acute health effects due to a large sulfuric acid release in Richmond, California, July 1993, California Department of Health Services.

EXECUTIVE SUMMARY

Objective:
To characterize the health effects of a large sulfuric acid release on individuals who sought care at emergency department (ED's) of three local health facilities.

Design:
Descriptive analysis based on retrospective review of medical records from acid-release-related patient visits.

Setting:
Two large private hospitals and one county public health clinic.

Patients:
Patients were defined as any individual seeking medical care as a result of the July 26, 1993 sulfuric acid release from Chemical Company A during the study period (July 26-30, 1993) at one of the three designated health facilities.

Results:
There were 14,198 visits to the three designated facilities during the initial 5 days after the acid release. Of these, 678 persons (4.8%) had more severe, objectively verifiable physical signs involving the respiratory tract, gastrointestinal tract or ocular system. Eighty-eight percent of those with severe signs suffered respiratory difficulties such as wheezing and other abnormal lung sounds. Fifteen percent of the total study population had no recorded health complaint. Among the 11,330 persons with less severe symptoms (80% of the total study population), the majority had complains involving multiple body systems: 55% respiratory, 46% ocular, 40% neurological, 36% gastrointestinal and 16% dermatological. The hospital ED's experienced a 2- to 16-fold increase in the number of patients seen during the first 5 days after the acid release. During this time respiratory complains were 5.8-19.5 times more frequent than during two reference periods: one week and one year prior to the acid release.

Conclusions:
The accidental release of 4-8 tons (estimated) of sulfur trioxide produced a large number of relatively minor health complains and a small percentage (5%) of more severe medical problems requiring physician evaluation. This event also significantly increased both the volume of patients and the proportion of those with respiratory conditions seen in local emergency departments. Adding on-call mental health professionals to the emergency staffs and assuring complete medial records documentation are recommended, as well as additional surveys to estimate acid exposure and follow the natural history of the initial health effects.